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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUBJECT: PCB Spill in Duwamish River Slip #1 - 09/13/74 DATE: November 12, 1974

FROM: Francis L. Nelson
Chief, Technical Support Branch FLN 11/12

TO: File

Late afternoon (4:00 p.m.) of 09/16, Dr. Blazevich called to advise me that a transformer loading accident at Slip 1 on 09/13 had caused a spill of about 250 gallons of PCB. He had been contacted by DOE personnel at Redmond regarding the hazards involved. Reportedly, Ken Mauermann of DOE was at the scene gathering additional facts and a sample of the spilled material. I requested that we be kept posted on progress and such facts as we had were relayed on to Jim Willmann that evening on the homebound ferry. Because of the Federal Agency involvement (Army transformer, being transported by the Air Force to Alaskan base), Dr. O'Neal also advised Ed Eldridge who rides in his car pool.

The following afternoon, upon returning from Pier 37 with Messrs. Gahler and Bloy, I responded to an "urgent" phone message from Ken Mauermann of DOE regarding the spill. He reported there had been some recovery but about 200 gallons had leaked into the water. He advised that he had been in contact with Dr. Pavlou of UW regarding a survey but the earliest Pavlou could get a vessel was 09/23 and he would need $7,000 to finance the cruise. Ken asked if we could help either with a survey or with funds for Pavlou if he was unsuccessful in getting State support. I advised we would assist in any way we could. These latest events were relayed on to Jim Willmann that evening on the homebound ferry and to Doug Hansen on the next morning's ferry.

The next morning Ken called to report that John Raymond of their Olympia office advised they had no available State funds to support Pavlou's survey. Ken also said they had no boats available to do an in-house survey and asked that we do what we could. I called Dr. Baumgartner in Corvallis (Pavlou has a chlorinated hydrocarbon study contract with NERC) to advise of spill - he had just talked with Pavlou and had indicated he would try for $5,000. I talked with Pavlou to see if he couldn't move his survey up but boat schedules apparently precluded his moving any earlier than 09/23. Neither Corvallis, UW, nor DOE were able to provide lab support for any earlier sampling we would conduct, so priorities were turned around in our lab and a survey under the lead of Dr. Blazevich was scheduled for 09/19. All interested parties were notified (NERC, UW, DOE and CG - the latter through Willmann) that bottom samples would be collected to try to establish spill migration with the hope that it was still confined enough so that some of the material could be recovered. By putting two analysts on the samples we hoped

results would be available for review by 09/23. Early on 09/19, Merley McCall (DOE - Olympia) called to request that we split samples with them to which we agreed.

The sampling run was conducted the following morning between 11:00 a.m. and 1:00 p.m. by Blazevich, Burns, Houck, and Nelson using the MonArk. Samples were taken from Slip 2 to the Riverside Marina in mid-channel, in addition to a close grid collected in and around Slip 1 (29 samples total). We met Pavlou and his chemist at Slip 1 at the conclusion of the run to exchange notes on station locations, etc. He advised KOMO had found out about the spill (from whom?) and were putting together a story - this was the first publicity, and the interest subsequently has increased markedly (see attached clippings).

On the morning of 09/20, I contacted Ira Wilder of the Edison Lab to seek advice on cleanup techniques. No experience with a comparable situation was his response, but Ira said they would discuss the problem among their group and get back to me later in the day. This he did late (for him) in the afternoon to report that nobody had any better suggestions than we had proposed; i.e., vacuum the concentrated portions carefully off the bottom to a barge and add a coagulating agent to settle the fines. He did offer to send their portable (tractor-trailer) treatment facility on a moment's notice (he gave me his home phone number) for as long as needed. This unit has self-contained coag-sed tanks and sand-carbon filters capable of treating at the rate of 200 gpm. He also gave me the phone number of Monsanto and suggested we also contact NALCO regarding any coagulating agents we may want.

Later Friday afternoon Dr. Blazevich called to advise four samples had been extracted and that he and Bob Rieck would again be working late (they had worked until 10:30 the previous evening) and also Saturday. He also advised Bob McCormack wanted to talk to me for the purposes of exchanging home phone numbers to facilitate coordinating press contact and any cleanup activities. This we did and over the weekend sufficient results were relayed on to both of us by Dr. Blazevich to warrant setting up a 09/23 meeting of all interested parties at Redmond to chart future action. The Coast Guard was subsequently invited by Jim Willmann.

At about 9:30 a.m. on Monday, September 23, Dr. Blazevich met with representatives of the DOE, Coast Guard, and Region X in the DOE conference room in Redmond (see attached list). The results of the bottom samples collected the previous Thursday were displayed along with an interpretation of the significance of the results (see attached map and table). It was the concensus of those present that these data demonstrated the presence of sufficient toxic material in a confined enough pattern to warrant an attempt at recovery.

The following day a meeting was called by the Coast Guard at Jim Willmann's request to establish responsibility for cleanup. Present at this session in addition to the above entities were representatives of the Corps of Engineers, the Air Force, the carrier and the U.S. Attorney (see attached list). At this session the Coast Guard relinquished on-scene coordination responsibility to EPA, and the Corps and Air Force declined to accept responsibility for cleanup. The carrier subsequently also declined by phone, thus leaving the problem to the DOE and EPA. Because the State had previously indicated they had insufficient financial and/or manpower resources to do the job, EPA assumed the lead for both technical and financial aspects of recovery.

On September 25, a second survey of the spill area was conducted using the MonArk to: (1) collect bottom samples for settleability and further PCB analysis, (2) observe bottom conditions and test Dow Imbiber Beads using scuba divers (see attached dive report), and (3) evaluate Kellogg Island as a spoil disposal site. In the meantime the IME (International Marine Enterprises) company was asked to explore methods of recovery and availability of equipment and give us their recommendations the morning of 09/26.

Accordingly, a session was held with DOE and officials of IME in our offices at 9:00 a.m. The contractor recommended use of a 20" suction dredge without cuttingheads to remove bottom material to a depth of 8". Dredged material was to be pumped to a series of three lined ponds constructed on Kellogg Island. Loss of fines from the dredge site was to be kept to a minimum by use of a hard hat diver-observer and installation of air bubble curtains upstream and downstream from the dredge site. Use of diver operated submersible pumps was also discussed but it was felt they would cause greater loss of fines and also would require several days as compared with one day for the suction dredge. Both the Corps and the Port of Seattle (owner of Kellogg Island) were advised of the plan (see attached letter).

This same date Dr. Joe Lafanara of the Edison Lab was contacted to discuss the problem with him and obtain his advice. He offered to contact makers (National Car Rental) of the "Mud Cat" to see if it had been or could be adapted to working at greater depths. A machine adapted for 30' was located at Burns, Oregon, (Gaines Construction), but this is still too shallow for our job. Also discussed IME's recommendations with Joe later in the day and he felt this was a good way to proceed.

During the initial meeting with the contractor an EPA contract negotiator from Corvallis-NERC was present in the event it was possible to come to an agreement. This was not possible on 09/26 nor on a subsequent session on 10/01 because of a soft price on earth work in the first session and unavailability of suitable and timely pond liner material during

the second session. Other problems associated with obtaining permission from the Port of Seattle to use Kellogg Island arose during this period and finally it was decided at a meeting of the Regional Emergency Response Team 10/01 (see attached wire activating RRT) to have a team of soils and foundation experts (including Jack Sceva and Hal Snyder, a trouble shooter from EPA Headquarters) give us their recommendations on constructing ponds in the spoil material on the Island. This inspection took place the afternoon of 10/02.

Special precautions recommended to insure watertightness of the ponds plus the increased likelihood that we would have to remove the solids from Kellogg, caused the feasibility of the large suction dredge alternative to fade. The use of diver-operated submersible pumps discharging to a pier top tank and treating the waste in the Edison Lab's 200 gpm trailer mounted plant began to be seriously considered. The plant was requested on 10/03 and permits for driving it across 13 states were being sought. It was expected to arrive in Seattle in 3 to 4 days after leaving New Jersey. Availability of sludge dewatering equipment was also being explored to reduce the quantity of solids to be transported to the ultimate disposal site.

In the meantime, the State DOE arranged to pay for boat time to cover a survey by Dr. Pavlou during dredging operations. The purpose of this effort is to document any losses to the water column during dredging. At our suggestion, the State also arranged to conduct settleability tests on samples of the sediment collected at the spill site. Representatives of NALCO assisted in this study which demonstrated the capability of reducing the PCB concentration in the dredged material to 5 ppm with the addition of 20 ppm of a standard NALCO polyelectrolite.

Preliminary results of the bottom samples collected 09/25 were available late 10/02 and indicated very little migration had occurred in the six days between the two surveys. Dr. Blazevich will use these data to draw a composite map from which to outline the material to be dredged. Following the removal of 4" $\pm$ of bottom material over this area, another set of bottom samples will be collected to determine the efficiency of the removal process. Residual PCB will also be conducted upon the effluent from the treatment facility before it is discharged. These data, along with the week long cruise of Pavlou in Elliott Bay and the lower Duwamish, should provide sufficient documentations for the effect of the spill, events during cleanup, and post cleanup conditions.

Others worthy of note from out of town who either contacted me or vice versa were:

Harry R. Day - a chemist working on hazardous waste in OSWMP at Headquarters

Dr. Nghiam - State epidemiologist in Olympia

Bob Lofgren - dredging expert with Willamette Western in Portland

Mr. Papageorge - Monsanto in St. Louis, Director of Environmental Studies

cc: A. Gahler
J. Willmann